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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,706	07/30/2007	Haruo Sugiyama	14875-169US1 C1-A0402P-US	9483

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EXAMINER	
SHIN, DANA H	

ART UNIT	PAPER NUMBER
1635	

NOTIFICATION DATE	DELIVERY MODE
06/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/594,706	SUGIYAMA ET AL.	
	Examiner	Art Unit	
	DANA SHIN	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *4-6 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1-22-08,5-27-08, 8-14-08, 3-5-09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Notice to Comply*.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-3 and 7 in the reply filed on April 29, 2009 is acknowledged.

Status of Claims

Claims 1-8 are currently pending in the instant application. Claims 4-6 and 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Accordingly, claims 1-3 and 7 are under examination on the merits in the instant case.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on January 22, 2008 is being considered by the examiner. However, the foreign patent documents WO 99/03506, WO 96/38176, WO 2005/092394 A1, and WO 2005/093076 A1 are considered only insofar as their English abstract.

Specification

The disclosure is objected to for containing sequence rule non-compliant subject matter. See page 9, lines 33-34. The nucleotide sequences disclosed in lines 33-34 must be preceded by appropriate SEQ ID NOs. See also the attached Notice to Comply.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 depends from claim 2, which recites that the cell growth-suppressing agent comprises a single-stranded RNA complementary to SEQ ID NO:1. The sequence listing of the instant application discloses SEQ ID NO:1 as "5'-CUCCAGCUGGCGCUUUG-3'", therefore, the claimed single-stranded, complementary RNA to SEQ ID NO:1 must be "5'-CAAAGCGCCAGCUGGAG-3'". However, claim 7 recites that the single-stranded RNA comprises SEQ ID NO:2 of "5'-UGAAGCGGAGCUGGAA-3'". As such, the claimed complementary, single-stranded RNA sequence of claim 2 does not correspond to the claimed single-stranded RNA sequence of claim 7. Hence, it is unclear whether the agent claimed in claim 7 "further" comprises SEQ ID NO:2 in addition to the complementary sequence of claim 2 in order to form a single-stranded RNA, and if so, one cannot envision how the two different RNA sequences are arranged in order to form the claimed single-stranded, cell growth-suppressing agent based on the instant claim language, thereby rendering the claim indefinite. For examination purpose, claim 7 will be interpreted, in light of Figure 1 of the instant

application, as a cell growth-suppressing agent comprising a single-stranded RNA partially complementary to SEQ ID NO:1, wherein the single-stranded RNA comprises SEQ ID NO:2.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Lopez-Berestein et al. (WO 03/061386 A1).

The claim is drawn to a cell growth-suppressing agent comprising a single-stranded RNA complementary to WT1 transcript.

Lopez-Berestein et al. teach that single-stranded anti-WT1 antisense molecules that are useful for inhibiting the growth of cancer cells and inducing apoptosis of cancer cells. They teach that the single-stranded antisense molecules may be RNA. They teach that the anti-WT1 antisense molecule is inserted into an expression vector so as to allow production of the antisense molecule in the cancer cells. See page 3, lines 3-12; page 4, lines 8-14; pages 9-12; claims 1, 3-4, 16. Accordingly, all claim limitations are taught by Lopez-Berestein et al.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugiyama et al. (EP 0841068, applicant's citation).

The claim is described above.

Sugiyama et al. teach a single-stranded antisense RNA oligonucleotide complementary to the RNA encoding WT1. They show that the antisense oligonucleotides against WT1 are effective leukemia cell growth inhibitors. See pages 2-3; Figure 1. Accordingly, all claim limitations are taught by Sugiyama et al.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hübinger et al. (*Experimental Hematology,* 2001, 29:1226-1235, applicant's citation).

The claim is described above.

Hübinger et al. teach that single-stranded RNA oligonucleotide ribozymes targeted to WT1 mRNA are effective suppressors of leukemia cell growth. See the entire reference. Accordingly, all claim limitations are taught by Hübinger et al.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugiyama et al. (US 6,034,235, applicant's citation).

The claim is described above.

Sugiyama et al. teach an antisense RNA oligonucleotide that is complementary to the RNA sequence of WT1, wherein the antisense RNA oligonucleotide is capable of binding to the

RNA sequence of WT1 and inhibits growth of leukemia cells. See column 2, lines 11-65; column 8, lines 64-67; claims 1-8. Accordingly, all claim limitations are taught by Sugiyama et al.

Claims 1, 3, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Mourelatos et al. (*Genes & Development,* 2002, 16:720-728, applicant's citation).

The claims are drawn to a cell growth-suppressing agent comprising a single-stranded RNA of SEQ ID NO:2, which is partially complementary to a transcript of WT1 gene transcript of SEQ ID NO:1.

Mourelatos et al. disclose the 16-mer nucleotide sequence of miR-115, whose entire 16 nucleotides are identical to the entire 16 nucleotides of SEQ ID NO:2 of the instant application. See Table 1. Since the 16-mer miR-115 nucleotide sequence cloned and identified by Mourelatos et al. meets the structural requirement set forth in the claims, it necessarily flows that the miR-115 nucleotide sequence of Mourelatos et al. must inherently perform the cell growth-suppressing function recited in the claims, absent evidence to the contrary. See MPEP 2112, which teaches the following: "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Accordingly, all claim limitations are taught by Mourelatos et al.

Claims 1, 3, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Mounts (US 2005/0118625 A1).

The claims are described above.

Mounts discloses a 25-mer nucleotide sequence of SEQ ID NO:123693, wherein nucleotides 7-22 correspond to the nucleotides 1-6 of SEQ ID NO:2. See below:

```
1 UGAAGCGGAGCUGGAA 16
  :||||||||||:||||
7 TGAAGCGGAGCTGGAA 22
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Mounts teaches that the nucleotide sequence can be RNA and that it can be used to modulate target gene expression. See sequence listing; paragraphs 0081, 0115, 0122-0124. Since the RNA sequence of SEQ ID NO:123693 of Mounts meets all structural requirements (single-stranded RNA comprising SEQ ID NO:2), it logically and inherently flows that the RNA molecule of Mounts must be a cell growth-suppressing agent, absent evidence to the contrary.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (US 6,225,051 B1).

The claims are drawn to a cell growth-suppressing agent **comprising** an RNA complementary to a portion of WT1 transcript SEQ ID NO:1, which is "CUCCAGCUGGCGCUUUG". Hence, the claimed "complementary" sequence to SEQ ID NO:1 is "CAAAGCGCCAGCUGGAG"

Note that the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements. See MPEP 2111.

Sugiyama et al. teach that WT1 expression is associated with cancer cell growth and disclose an 21-mer antisense sequence of SEQ ID NO:12 that hybridizes to the WT1 transcript. They disclose SEQ ID NO:12 as an RT-PCR antisense primer. They teach that WT1 gene expression by RT-PCR assay can be used to detect cancer. It is found that the nucleotides 2-18 of the 21-mer SEQ ID NO:12 (TCAAAGCGCCAGCTGGAGTTT) are complementary to the 17-mer SEQ ID NO:1 of the instant application. See columns 3-4; Table 3. Sugiyama et al. do not teach a single-stranded RNA comprising RNA of SEQ ID NO:12 as a cell growth-suppressing agent.

It would have bee obvious to one of ordinary skill in the art at the time the invention was made to synthesize an RNA antisense nucleotide molecule of SEQ ID NO:12 of Sugiyama et al. and use it as a cancer cell growth-suppressing agent.

One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success because SEQ ID NO:12 of Sugiyama et al. that is fully complementary to the entire 17-mer SEQ ID NO:1 was known to hybridize specifically with the WT1 mRNA, and because WT1 expression was known to indicate or be associated with the presence of cancer cell growth as taught by Sugiyama et al. Since a WT1 transcript (mRNA)-specific antisense (complementary) nucleotide sequence was already disclosed in the art by Sugiyama et al., one of ordinary skill in the art would have readily recognized that the RNA sequence of the WT1 mRNA-specific antisense (complementary) nucleotide sequence, SEQ ID NO:12, of Sugiyama et al. would also hybridize specifically to the cancer cell growth-associated WT1 mRNA by antisense mechanism, thereby functioning as an antisense agent that suppresses cancer cell growth. Accordingly, the claimed invention taken as a whole would have been *prima facie* obvious at the time of filing.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ware et al. (US 6,232,073 B1).

The claims are described above.

Ware et al. teach that the WT1 gene is an oncogene and therefore overexpression of WT1 transcript is an indicator for cancer such as prostate cancer, breast cancer, and leukemia. They disclose a 21-mer SEQ ID NO:30 whose nucleotides 2-18 are complementary to the entire 17

nucleotides of SEQ ID NO:1 of the instant application. They disclose SEQ ID NO:30 as an antisense primer for RT-PCR-based WT1 transcript detection method. See columns 1-2, 10; Table 1. Ware et al. do not teach a single-stranded RNA comprising RNA of SEQ ID NO:30 as a cell growth-suppressing agent.

It would have bee obvious to one of ordinary skill in the art at the time the invention was made to synthesize an RNA antisense nucleotide molecule of SEQ ID NO:30 of Ware et al. and use it as a cancer cell growth-suppressing agent.

One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success because SEQ ID NO:30 of Ware et al. that is fully complementary to the entire 17-mer SEQ ID NO:1 was known to hybridize specifically with the WT1 mRNA, and because WT1 expression was known to indicate the presence of cancer cell growth as taught by Ware et al. Since a WT1 mRNA-specific antisense nucleotide sequence was already disclosed in the art by Ware et al., one of ordinary skill in the art would have readily recognized that the RNA sequence of the WT1 mRNA-specific antisense nucleotide sequence, SEQ ID NO:30, of Ware et al. would also hybridize specifically to the cancer cell growth-associated WT1 mRNA by antisense mechanism, thereby suppressing cancer cell growth. Accordingly, the claimed invention taken as a whole would have been *prima facie* obvious at the time of filing.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,034,235. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instantly claimed cell growth-suppressing agent comprising a single-stranded RNA complementary to a transcript of WT1 gene of claim 1 overlaps in scope with the "growth inhibitor for leukemia cells

comprising an antisense oligonucleotide to the Wilm's tumor gene" of the reference claim. Although the reference claim does not recite “RNA”, the term "antisense oligonucleotide" in the reference claim reads on an RNA as evidenced by the disclosure of the specification. See column 2, lines 56-62, wherein the specification discloses that the antisense oligonucleotide embraces an RNA chain that is complementary to the RNA chain of WT1 gene. As such, the broad, genus claim of the instant application is obvious over the narrow, species claim of U.S. Patent No. 6,034,235. Hence, claim 1 of the instant application is not patentably distinct from claim 1 of U.S. Patent No. 6,034,235.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANA SHIN whose telephone number is (571)272-8008. The examiner can normally be reached on Monday through Friday, 7am-3:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, James (Doug) Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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